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What is claimed is:

- 1 1. A plasma lamp comprising:
 2 a source of radio wave radiation;
 3 a waveguide structure for coupling said radio wave radiation to a
 4 plasma discharge-forming medium so as to excite a plasma discharge,
 5 said waveguide structure being at least largely composed of solid
 6 dielectric material; and
 7 a housing for said plasma discharge-forming medium.
- 1 2. A plasma lamp as recited in Claim 1, wherein said waveguide
 2 structure is a resonant structure which supports at least one resonant
 3 mode of said radio wave radiation.
- 1 3. A plasma lamp as recited in Claim 1, wherein said housing and said
 2 waveguide structure form a single, integrated structure.
- 1 4. A plasma lamp as recited in Claim 3, wherein said housing is formed
 2 from ceramic material.
- 1 5. A plasma lamp as recited in Claim 4, wherein said ceramic material
 2 includes alumina.
- 1 6. A plasma lamp comprising:
 2 a source of radio wave radiation;
 3
 4
 5 said waveguide structure being at least largely composed of a ceramic
 6 material; and
 7 a housing for said plasma discharge-forming medium.

PATENT

- 1 7. A plasma lamp as recited in Claim 6, wherein said waveguide
2 structure is a resonant structure which supports at least one resonant
3 mode of said radio wave radiation.
- 1 8. A plasma lamp as recited in Claim 6, wherein said housing and said
2 waveguide structure are integrated into a single structure.
- 1 9. A plasma lamp as recited in Claim 8, wherein said housing is formed
2 from another ceramic material.
- 1 10. A plasma lamp as recited in Claim 9, wherein said other ceramic
2 material includes alumina.
- 1 11. A plasma lamp as recited in Claim 6, wherein said first-mentioned
2 ceramic material includes alumina.
- 1 12. A plasma lamp as recited in Claim 6, wherein said first-mentioned
2 ceramic material includes titanium dioxide.
- 1 13. A plasma lamp as recited in Claim 6, wherein said first-mentioned
2 ceramic material includes barium neodymium titinate.
- 1 14. A plasma lamp as recited in Claim 9, wherein said other ceramic
2 material is the same material as said first-mentioned ceramic material.
- 1 15. A plasma lamp comprising:

4 plasma discharge-forming medium so as to excite a plasma discharge.
5 a housing for said plasma discharge-forming medium, and

PATENT

6 wherein said waveguide structure is at least largely composed of
 7 a first ceramic material and said housing is formed from a second
 8 ceramic material and includes a window that is transparent to visible
 9 light.

1 16. A plasma lamp as recited in Claim 15, wherein said window is
 2 formed from sapphire.

1 17. A plasma lamp as recited in Claim 15, wherein said waveguide
 2 structure is a resonant structure which supports at least one resonant
 3 mode of said radio wave radiation.

1 18. A plasma lamp as recited in Claim 15, where said housing and said
 2 waveguide structure are integrated into a single structure.

1 19. A plasma lamp as recited in Claim 15, wherein said second ceramic
 2 material includes alumina.

1 20. A plasma lamp as recited in Claim 15, wherein said first ceramic
 2 material includes alumina.

1 21. A plasma lamp as recited in Claim 15, wherein said first ceramic
 2 material includes titanium dioxide.

1 22. A plasma lamp as recited in Claim 15, wherein said first ceramic
 2 material includes barium neodymium titinate.

2 material is the same as said first ceramic material.

1 23. A plasma lamp as recited in Claim 15, wherein said

PATENT

2 a housing containing a plasma discharge-forming medium, said
3 housing being formed of ceramic material and including a window that is
4 transparent to visible light produced by said plasma discharge.

5 a source of electromagnetic energy; and

6 means for coupling said electromagnetic energy to the plasma
7 discharge-forming medium so as to excite a plasma discharge.

1 25. A plasma lamp as recited in Claim 24, wherein said window
2 comprises sapphire.

1 26. A plasma lamp as recited in Claim 24, wherein said ceramic
2 material comprises alumina.

1 27. A plasma lamp as recited in Claim 24, wherein the source of
2 electromagnetic energy and the housing are formed within the ceramic
3 material as an integrated structure.

1 28. A plasma lamp as recited in Claim 27, wherein said source of
2 electromagnetic energy comprises electrical coils.

1 29. A plasma lamp as recited in Claim 27, wherein said source of
2 electromagnetic energy comprises an antenna.